—Dr. Ashmead presented the following paper:

REMARKS ON HONEY BEES.

By William H. Ashmead.

Hive bees, or the genuine honey bees, are of great economic importance in all countries, not only as adding to the wealth of the people but as pollenizers of various plants and fruit trees. Their study, therefore, is always interesting, and something new may be discovered either biologically or morphologically.

A number of exotic honey bees having accumulated in the National Museum, I became greatly interested in their study and in naming the various species represented. Thinking the results of this study would prove of interest to some of our members I shall to-night give briefly some of these results, and shall exhibit most of the various species now represented in the National collection. The species exhibited are, as you will see from the labels, from various countries: Europe, Africa, the East Indies, Japan, China, Malay Archipelago, the Philippines, etc.

You are all doubtless aware that authorities differ greatly respecting the number of species of honey bees found in the world. Some think there is but a single species and treat others as mere varieties; others that there are two or three species; while still others would have nine, ten or a dozen species. Our material is yet too limited for me to form any decided opinion, or to settle the vexed question respecting the number of species, or the various problems connected with the numerous varieties, originating from cross-fertilization and various climatic causes; but so far as my studies have gone I have reached almost the same opinion as that given by Mr. Frederick Smith, of the British Museum, many years ago, and published in the Annals and Magazine of Natural History for 1865.

The old genus *Apis* should, I think, be divided into two genera, representing the two sections first defined by Smith, as follows:

Eyes somewhat convergent above so that the vertex is narrowed, the lateral ocelli being farther from each other than to the eye margin; second recurrent nervure received by the third cubital cell very near its apex..... .....*Megapis*, n. gen.
(*Type: Apis dorsata* Fabr.)

Eyes not convergent above, the vertex not narrowed, the lateral ocelli not farther from each other than to the eye margin; second recurrent nervure received by the third cubital cell some distance from its apex..... .....*Apis* Linné.
(*Type: Apis mellifera* L.)

Genus MEGAPIS Ashmead.

Only two species fall in this genus.

(1.) **Megapis zonata** Smith.

Apis zonata Smith.

Hab.—Philippine Islands, Celebes.

This species is treated by Gerstaecker as a variety of *Apis dorsata* Fabr., but I consider it quite distinct. I exhibit a single ♀ taken by Dr. P. L. Stangl, at Bacoor, Philippine Islands.

(2.) **Megapis dorsata** Fabricius.

Apis dorsata Fabr.

a. var. bicolor Klug.

aa. var. testacea Smith.

Hab.—India, Java, Ceylon, Borneo, Malay Archipelago, Philippines.

Evidently a common species in some places. Dr. W. L. Abbott has sent the National Museum many specimens from the Straits Settlement.

Genus APIS Linne.

(1.) **Apis mellifera** Linné.

(Typical form black.)

a. var. ligustica Latr.

aa. var. fasciata Latr.

Hab.—All parts of the world (introduced).

(2.) **Apis cerana** Fabricius.

Apis sinensis Smith, ♂.

Apis japonica Radoszkowsky, ♀.

Hab.—Japan and China.

I show specimens of ♀, ♀ and ♂ from Japan and China. The species is apparently common in Japan. It shows some affinity with *Apis mellifera*, but is quite distinct as may be seen by comparing the different sexes with *mellifera* exhibited together in the box.

(3.) **Apis indica** Fabricius.

Hab.—India.

(4.) **Apis nigrocincta** Smith.

Hab.—India, China, Malay Peninsula, and the Philippines.

A common species variable in the color of the abdomen.

(5.) **Apis nigritarum** Lepeletier.

Apis adansonii Latr.

Hab.—Africa.

A smaller species than *nigrocincta* and *indica*.

(6.) **Apis unicolor** Latreille.

Hab.—Madagascar.

It is also recorded from the Philippines, but probably erroneously.

(7.) **Apis florea** Fabricius.

Hab.—India.

This is probably the smallest honey bee known, and presents certain structural characters that will exclude it from the genus *Apis* Linné, as now restricted. In some of its characters it shows some affinities that ally it to the large honey bees *Megapis*. I propose to place it in a genus by itself under the name **Micrapis**. The lateral ocelli are farther from each other than to the eye margin, the venation nearly as in *Apis* Linné, while the basal joint of the hind tarsi in the male is incisely lobed.

Dr. Ashmead stated his belief that the honey bees were originally—in the wild state—black, unbanded, and that the yellow-banded races of *Apis mellifera* are a product of domestication and artificial selection. In discussing Dr. Ashmead's communication, Mr. Benton said he differed decidedly from the former when he stated that all wild bees belong to the black type. He cited the various races of *mellifera* which are found in eastern Mediterranean countries and have undoubtedly been wild for thousands of years, their yellow color being in no sense a result of domestication. *A. dorsata* and *A. florea* are both yellow-banded bees, yet have never been cultivated; and *indica*, which is quite highly colored in some portions of India, is cultivated to a very limited extent only. He referred to the mention of yellow bees in Virgil's 4th Georgic, and expressed the belief that the Italian race of honey bees was the result of contact between bees probably brought by early Phœnician settlers to southern Italy and the black bees of the country. He stated his belief that there have probably always been two distinct types of wild bees occupying distinct regions.

Mr. Benton said further that *Apis dorsata* has been known in literature as the Giant Bee of India; he thought it should not be called the Common Bee of India—the term applied to it by Dr. Ashmead—since that designation belongs to *Apis indica*, a more abundant and more widely distributed species than *dorsata*.

Dr. Howard asked Mr. Benton if he could tell what was the species of bee mentioned in Kipling's Jungle Book as chasing the "red dholes" or hairy-toed dogs of the Deccan. Mr. Benton replied that it was undoubtedly *dorsata*, a species known for its fierceness and persistence in pursuing intruders when thoroughly aroused. Dr. Howard then asked Mr. Benton whether the life-history of the honey bee as portrayed in Maeterlinck's "Life of the Bee," is scientifically accurate, to which Mr. Benton replied that it is so, except, perhaps, in some minor particulars which he did not then recollect.

—The concluding paper was by Mr. Busck, and entitled:

A NEW TINEID GENUS FROM ARIZONA.

By August Busck.

Dorata,* n. gen.

Labial palpi (Fig. 2) very long, porrected; second joint thickened with stiff porrected hairs, nearly smooth on the underside, roughened above; terminal joint short, deflexed, somewhat thickened with scales, pointed, though not acute. Maxillary palpi obsolete. Antennæ (♂) more than half as long as fore wings, verticillate, having a whorl of long (5) hairs at the end of each joint; basal joint with pecten. Tongue obsolete. Fore wings (Fig. 2) narrow elongate, pointed, termen very oblique. 12 veins; 7 and 8 short-stalked; 7 to costa just above apex; 1b furcate at base. Hind wings (Fig. 2) ovate, slightly broader than the fore wing; 8 veins, all separate; 6 and 7 parallel; 3, 4 and 5 equidistant. Posterior tibiæ rough-haired above.

Type: Dorata virgatella, n. sp.

This genus is not closely related to any described genus, but will, I believe, find its natural place between the *Chimabache* and the *Aplota* groups of the *Œcophoridæ*. I should not be surprised if the females will be found to be wingless.

The two following species of this genus are the largest Tineids, in alar expanse, known from North America:

With fore wings striate..... .....*virgatella*
With fore wings plain..... .....*inornatella*

Dorata virgatella, n. sp.

Labial palpi dirty yellowish white. Head and thorax yellowish. Fore wings light creamy buff colored with darker longitudinal streaks of light clay color; these streaks follow the venation and are just as wide as the intervals of the ground color (Fig. 2). Cilia dirty white. Hind wings shining

*δόρατος, a lance.